CLAIMS

What is claimed is:

1.   A method for translating between Standard Commands for Programmable

2   Instrumentation (SCPI) protocol and .NET protocol communications,

        comprising:

4

        when the communication is a SCPI protocol command from a client,

6

                converting the SCPI protocol command to a .NET protocol

8   command; and

10   evaluating the .NET protocol command to determine the validity

                of parameters sent from the client with the SCPI protocol

12   command;

14   otherwise, when the communication is a SCPI protocol query from the

        client,

16

                converting the SCPI protocol query to a .NET protocol query; and

18

                evaluating the .NET protocol query to determine the validity of

20   parameters sent from the client with the SCPI protocol query; and

22   calling an appropriate Application Program Interface (API) of an

        instrument application, wherein the communication is intended for the

24   instrument application and wherein the API is responsive to method calls

        in the .NET protocol.

2.   The method as recited in claim 1, further comprising:

2

before the method step converting the SCPI protocol command to the
4   .NET protocol command, placing the SCPI protocol command into .NET
stream format; and

6

before the method step converting the SCPI protocol query to the .NET
8   protocol query, placing the SCPI protocol command into .NET stream
format.

3.   The method as recited in claim 1, further comprising:

2

when the query or the command is communication requiring response
4   from the instrument application,

6   forming a .NET protocol response message to the communication;

8   translating the .NET protocol response message to a SCPI
protocol response message, wherein the SCPI protocol response
10   message comprises contents of nodes of a SCPI hieratical tree
structure; and

12

transferring the SCPI protocol response message to the client.

4.   The method as recited in claim 3, further comprising:

2

before the method step transferring the SCPI protocol response message
4   to the client, converting the SCPI protocol response message to SCPI
format order.

5. The method as recited in claim 1, further comprising:

2

asynchronously receiving an out of band IEEE 488.1 protocol signal from

4 the client;

6 converting the out of band signal IEEE 488.1 protocol signal to a .NET

event; and

8

transferring the out of band signal IEEE 488.1 protocol signal to the

10 instrument application.

6. The method as recited in claim 1, further comprising:

2

when an event occurs in the instrument application,

4

posting a notice of event occurrence in a status module; and

6

asynchronously notifying the client of event occurrence.

7. The method as recited in claim 6, further comprising:

2

after the step asynchronously notifying the client of event occurrence,

4

receiving query from the client requesting detailed information

6 regarding the event occurrence;

8 forming a .NET protocol response message to the query;

10 translating the .NET protocol response message to a SCPI

protocol response message; and

12   transferring the SCPI protocol response message to the client.

8.   A computer readable memory device embodying a computer program of

2   instructions executable by the computer, the instructions comprising:

4   when the communication is a SCPI protocol command from a client,

6   converting the SCPI protocol command to a .NET protocol
                command; and

8

                evaluating the .NET protocol command to determine the validity

10   of parameters sent from the client with the SCPI protocol
                command;

12

        otherwise, when the communication is a SCPI protocol query from the

14   client,

16   converting the SCPI protocol query to a .NET protocol query; and

18   evaluating the .NET protocol query to determine the validity of
                parameters sent from the client with the SCPI protocol query; and

20

        calling an appropriate Application Program Interface (API) of an

22   instrument application, wherein the communication is intended for the
        instrument application and wherein the API is responsive to method calls

24   in the .NET protocol.

9.   The computer readable memory device as recited in claim 8, the

2   instructions further comprising:

4   before the method step converting the SCPI protocol command to the .NET protocol command, placing the SCPI protocol command into .NET

6   stream format; and

8   before the method step converting the SCPI protocol query to the .NET protocol query, placing the SCPI protocol command into .NET stream

10   format.

    10. The computer readable memory device as recited in claim 8, the

2   instructions further comprising:

4   when the query or the command is communication requiring response from the instrument application,

6

     forming a .NET protocol response message to the communication;

8

     translating the .NET protocol response message to a SCPI

10   protocol response message, wherein the SCPI protocol response message comprises contents of nodes of a SCPI hieratical tree

12   structure; and

14   transferring the SCPI protocol response message to the client.

    11. The computer readable memory device as recited in claim 10, the

2   instructions further comprising:

4   before the method step transferring the SCPI protocol response message to the client, converting the SCPI protocol response message to SCPI

6   format order.

12. The computer readable memory device as recited in claim 8, the
2   instructions further comprising:

4   asynchronously receiving an out of band IEEE 488.1 protocol signal from
      the client;
6
      converting the out of band signal IEEE 488.1 protocol signal to a .NET
8   event; and

10   transferring the out of band signal IEEE 488.1 protocol signal to the
      instrument application.

13. The computer readable memory device as recited in claim 8, the
2   instructions further comprising:

4   when an event occurs in the instrument application,

6   posting a notice of event occurrence in a status module; and

8   asynchronously notifying the client of event occurrence.

14. The computer readable memory device as recited in claim 13, the
2   instructions further comprising:

4   after the step asynchronously notifying the client of event occurrence,

6   receiving query from the client requesting detailed information
          regarding the event occurrence;
8
      forming a .NET protocol response message to the query;

10   translating the .NET protocol response message to a SCPI
            protocol response message; and

12

            transferring the SCPI protocol response message to the client.

15.   A system, comprising:

2

       a parser module configured to receive a Standard Commands for

4   Programmable Instrumentation (SCPI) protocol communication from a
       client and to translate the SCPI protocol communication into a .NET

6   protocol communication; and

8   an evaluator module, configured to evaluate the .NET protocol
       communication to determine the validity of parameters sent from the

10   client with the SCPI protocol communication.

16.   The system as recited in claim 15, further comprising:

2

       a first format converter module configured to convert the SCPI protocol

4   communication into a .NET stream format.

17.   The system as recited in claim 15, further comprising:

2

       a first translator module configured to translate a .NET response from the

4   instrument application to a SCPI protocol response.

18.   The system as recited in claim 17, further comprising:

2

       a second format converter module configured to convert the SCPI

4   protocol response in a .NET stream format into SCPI format order.

19.   The system as recited in claim 15, further comprising:

2

       a third format converter module configured to convert an out of band

4   IEEE 488.1 signal into a .NET signal.

20.   The system as recited in claim 15, further comprising:

2

       a status module comprising an event message queue and a status register

4   wherein the message queue and the status register store event occurrence

       information from the instrument application;

6

       an event translator module configured to receive notice of event

8   occurrence from the status module and to translate that notice into a SCPI

       status notification.